

**FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.**

[PRICE 6D.

1. - A coffee room is now open for the maintenance of the students.



## RAILWAYS IN GERMANY—1943.

## THE GAS MONOPOLY.

[illegible]

LINER POSITIVELY DETERMINED ON.			
Ulm	Frederikshafen	100	75
Villingen	Helm	60	50
Heidelberg	Konstanz	78	45
Frankfurt-on-the-Maine	Helmshorn	65	40
Heide	Cassel	200	135
Cologne	Minden	200	107 1/2
Minden	Hannover	60	35
Collo	Hannover	100	100
Hannover	Bremen	170	100 1/2
Hannover	Berlin	250	155
Frank	Frankfurt-on-the-Maine	240	150
Vienna	Liege	144	90
Berlin	Pisa	160	100
Heide	Prague	144	90
Gomitz	Prague	200	127 1/2
Stuttgart	Ulm	100	60 1/2
Frank	Helmshorn	100	110 1/2
Liege	Frederikshafen	60	30
Totals		2013	1730 1/2

**TESTIMONY TO THE CELL THEORY.—**Great improvement in the  
**CHINA**—It has long been a desideratum in the coal trade (says the  
*Western Chronicle*) to accomplish the shipping of coals without breakage, and  
 to emit less or small quantity throughout the ship. Another object, which  
 it has long been highly regarded to effect, was the prevention of that most  
 deleterious of evils, immediately under the hand, which was temporarily  
 done the mode of shipment that has hitherto been in use. We are happy to  
 state, that these desires have at length been attained, in an apparatus invented by  
 Mr. J. W. Hamilton Esq., of Wapping Grange Colliery (who has taken out a  
 patent for it), which we saw fully tested in the mine shaft at Brompton, on  
 Wednesday last. The apparatus we find, on that day, on board the ship  
*Edinburgh*, of London built vessels, belonging to Mr. James Phillips, of that  
 port, in the presence of several colliery owners, and Esqrs., and a number of  
 high standing and experienced in the coal trade; all of whom expressed their  
 unqualified approbation of the principle of the invention, and their perfect  
 satisfaction of its having entirely accomplished the desiderata under which the  
 trade has so long laboured, thus the reason to which we have alluded, a  
 perfect fulfilment of the apparatus we wish a short time ago, at Brompton, we  
 found a number of new facts, which referred to that port on Tuesday last, and  
 the results of which testify that in some better times and a range of coals  
 in such improved condition. This is the most of testimony that is yet con-  
 siderable and convincing. We could not help admiring the efficiency of this in-  
 vention, which, the contrivance really useful, in promoting energy. It is  
 particularly valuable in breaking coals in tidal water, and it will be attended  
 with other advantages, in which we will not now fully enter in this com-  
 munication, but will soon return, but which will not fail to discover them themselves,  
 when the occasion shall come that an honest appreciation the particu-  
 lars most judiciously designed in the record of his ingenuity and contrivance. We  
 say, in conclusion, respectfully but earnestly to call the attention of the coal-  
 owners to the merits of Mr. Hamilton's invention, and to recommend it to their  
 judicious adoption, being perfectly satisfied that it is calculated, in a most  
 economical degree, to benefit a trade of so much importance to the country, and  
 which we are sorry to find at present in such a deplorable condition.

### MINE ACCIDENTS

**RAILROADS AT NEWCASTLE.**—We have had a moderate amount of business doing in railway stock, with a desire to invest. There are lodged at the Town clerk's office for these brilliant high level bridges across the River Tyne—one about a quarter of a mile west of the present bridge, proposed by the Newcastle and Carlisle Company, with a view of diverting the north traffic from the east coast along their line to a point near Glendon, about half a mile from Newcastle, so as to carry a new line straight to the north, ending with Edinburgh and Glasgow; the second project is, to carry the bridge, with railway traffic, over the street about eighty paces above the present bridge, with an intention, in future, of taking a railway through the town, to the terminus of the Newcastle and North Shields Railway, projecting rather more than a mile down that line, and descending from thence to Shields again. Third, to join with the North British Railway to Edinburgh—the line seems to be the most popular; the third proposed bridge is by our nearest neighbor, Richard Girdle, Esq., and to be erected on the present ancient bridge, and made of three—of these a recent agricultural contractor to this town at the foot of Gray-street.—(Glasgow, Railway Times.







## NOTICES TO CORRESPONDENTS.

The *Mining Journal* is regularly published about two o'clock on Saturday afternoon, at the office, No. 24, FLEET STREET, where it can always be obtained and there is no reason for irregularity in its supply, in town, either by express or by the post, or by the railway, when it is ordered; but, as regards the transmission of the paper to country subscribers, the time is shared with the Post-office authorities.

We have received an important communication from Mr. Ryan, in explanation of the system of Ventilation used in the mines, which will appear in next week's *Journal*—also the communication of Mr. H. Dixon's interesting paper on the History and Progress of Colliery Engineering.

Mr. A. Green has addressed us a letter, in which he states, that, being perfectly satisfied as to the identity of "E. R. D." in declining pursuing the discussion further. We cannot, however, answer the identity of the writer has to do with the question at issue.

"A. M." (Doncaster)—Descriptive particulars of the Atmospheric Railway have already appeared in the *Mining Journal*; but we shall have occasion shortly to report to the subject, when we will bear the subject of our correspondent's note in mind.

"T. W. S." (Lancashire)—Direct to the office, Doncaster, Lancashire.

"E. P." (Doncaster)—Should apply to a local shareholder, who will readily give him the information he seeks.

"J. S." (Doncaster)—The request of our correspondent shall be attended to. Received: A shareholder in the Bristol and Exeter Railway—"An Opponent" (Lancashire)—Mr. Rennie (Doncaster), on Preventing Accidents in Mines; also Mr. Gifford's Library and Bookshop, Register and Account, for 1864. The second part of Mr. Montgomery Martin's *Ireland Before and After the Union* has just been published. The first has not come to hand, as the work is now in our possession. Mr. Chapman's *History of the Canal*, for Accelerated Communication with India.

## THE MINING JOURNAL,

### Mineralogical and Commercial Gazette.

LONDON, DECEMBER 23, 1864.

The approaching eve of Christmas, and termination of the year, and, with that, our concluding Number of the present volume, calls from us the expression of a duty we owe our subscribers and correspondents for the support we have received, more especially from the latter, during the past twelve months. The increasing interest manifested on the several subjects forming matter of discussion at the present moment, added to those which have taken precedence in our columns, at once assure us of the advance we are making in the estimation of the man of science and the practical miner. Whether we look east, west, north, or south, we find the valuable contributions of parties, who feel with us that the *MINING JOURNAL* is a legitimate medium through which they can convey their ideas and the result of their observation, while they derive that information which reciprocity of feeling insures and contributes. To "one and all" (to adopt the Cornish motto to our feelings), we have only to say, "We wish you a merry Christmas and a happy new year."

We have hitherto carefully abstained from offering any remarks on the "strike" of the colliers generally, and the consequences which might be apprehended from a stubbornness being observed on their part—while we indulged in the hope that amicable arrangements, mutual forbearance under circumstances, and, further, mutual concessions on the part of the employer and the employed, would ere this have taken place, and that we should thus have been relieved from the irksome duty, otherwise imposed, of directing attention to a matter which, we regret to say, is no longer local, but would oppose to be extending itself throughout the whole of the colliery districts. "Union" is desirable where injustice exists, and "might" would overcome right, where power is employed to trample upon justice or where money is brought forward not on an equality with labour—both latter should ever meet with protection, and assume its proper level. While we are, however, unable to admit all this, there is such a thing as combination—a combination got up by interested parties—by paid delegates and officers—who, possessing some little education, avail themselves of that power of misguiding and misdirecting the humble yet honest working collier, who from his childhood has been taught to labour, first for the support of his parents, next his wife and children, and who, perhaps, never half a dozen miles from his home, may be said to be an isolated being, content with his lot, until friends are thrown about, and excitement prevails—he, with honest feeling and indignation, when roused by a sense of supposed wrongs, readily falling into the snare prepared by those who look only to the advancement of their own interests, and inconsiderate and careless, so they are, of the injury inflicted on others.

In making these remarks, let it not be supposed for one moment that we are insensible to the state of the working collier—to the want of care and attention on the part of the colliery proprietors, whether with regard to the safety of his life, or the protection which, in cases of accidents, it is their bounden—Christian duty to afford to the widow and orphan. Our columns of the past few weeks, testifying, as they have done, with the results of inquiries as regards accidents (in most instances the surviving members of the families being left totally unprotected), demonstrate too strongly how much concern the colliery owner is subjected to, for not establishing a society to which the aged and distressed could look for support. Let, then, the colliery owner, whether the proprietor of the colliery, or those who work in, come forward and establish a fund for the relief of those who have to depend on the loss of their natural protectors—and it would create a proper feeling and spirit in the miner who would, under such circumstances, look up to his employer as one of those who, in case of death, he might consider the guardian of his hapless children. But such is not now the case.

The collier is yet to work with impetuous and steady tackle—he is not to work in places where fire or choke damp is known to exist, without that protection which the safety lamp would afford—he is dependent on the owner or his agent, or on mutual compromise, and hence the plea put forward among the miners, that it is time to throw off the yoke. Willingly, yes, most willingly—should they receive our aid; we feel, and deeply feel, for the position of the working collier; we know full well the toll the danger, which he undergoes, and, were the question confined to this, we would—yes, heart and soul—have our humble aid to contribute his condition—as evidence of which, we have already expressed our results of addressing the Members of the Council, as well as the House of Parliament; but, we ought to say, this is not the end of which complaint is made—this may form a valuable adjunct, but the necessary means of a general character, and with another object—and, if it be not put down, we can hardly well contemplate the consequences which must result.

A correspondent, whose name appears in another column, has furnished us with a pointed paper, entitled "Appendix to the Month of Grace" to the Miners of North Staffordshire, and which, we are given to understand, has been previously circulated; it bears date "Huddersfield, 23rd December," and is signed "The Editor of the *Doncaster Mining Journal*." We propose taking a brief notice of this address, which, we feel, we know the interest of the miners in the language is not of those who are content with a mere statement of the facts, but who are anxious to do justice to the cause, and to do so in a way which will be of service to the cause. We will follow it through, although we agree with our correspondent in saying, as he says, that we cannot see the

channel of communication which is secured to the delegates, of putting before the working collier the remarks which we feel called upon to make, which, without being intended as a reply, might, we think, be read with advantage by those whom the object of the statement to which we have referred is to delude.

The address commences with an appeal on the part of the delegates (?) to their fellow workmen, warning them that the 30th of December is drawing nigh, and appealing to them for their assent to the terms of the "Miners' Association," the objects (?) of which they pretend to define. It will be our province to examine what these objects are—and next, to see the nature of the evidence or arguments on which they are attempted to be supported or upheld.

The address proceeds to state, that although "a great many unions in every district" have been established, yet that they "have all failed to accomplish the object they had in view;" and hence the adoption of the present system—that of uniting in one common bond the miners of the United Kingdom, without regard to locality, irrespective of population, or the means of employment, or the difference which naturally arises in the rate for labour, attributable, as such is, to local causes; it is notorious—no matter whether we take the agricultural labourer or the artisan—the value of labour depends on the demand which exists and the supply. The miners of North Staffordshire are told that, where they have formed a district union, the masters have employed workmen from other districts—to prevent which is the object of the "Miners' Association;" and, in almost the next line, they are told "it is the duty of every man to sell his labour in the best market—the object of this union (it continues) is to provide work and wages for every man and lad of his own home and in his own country. Give them (say the delegates) as good wages as you see in this district, then they will have no interest in coming to take your employment from you." It is almost an insult to common sense to offer any comment on this appeal—surely it must be understood by the meanest understanding; yet we cannot but feel at the assurance of the parties who put forth such an address, which, in the few words we have quoted, claims the right of every man selling his labour in the best market—and, at the same time, the object of the "Miners' Association" (what pollution of words) is, that he should be confined to his own district; and further, that every district is to be governed by one—that a universal law shall exist, which shall apply to the rate of wages, and no other what the advantages or disadvantages which other districts may present—no matter the price of the loaf, meat, house-rent, or garden—no matter the paucity or density of population—no matter the demand for labour or the remunerative returns afforded the employer (for the latter seems thrown overboard) the recommendation of the delegates is, that all should be paid alike; and, what they would prohibit the one collier trenching on the other's rig, tells them, at the same moment, that each is entitled "to sell his labour in the best market." We can hardly conceive that such a weak reasoning, like this, can have any effect; but if it be not, and that boldly, by those who give employment, we fear that the poor collier will be the first to suffer.

The union, we are told, is "a general union, and extend throughout the length of the United Kingdom." This is well to be remembered, as it renders manifest that no local complaint arises, but that it is the object of the agitators to create a fever throughout the country, which is already risen to such a height as, we admit, causes just ground of apprehension as to the fatal consequences which may ensue. In thus expressing our firm conviction, we repeat that our first object would be to support the working miner. How all have advocated his interest—the welfare of himself, his wife, and young ones—while we are not unmindful of the interests of his employer, or the position in which the former would be placed could the "general union," or its delegates, attain their ends. True is, that the collier may be told—"if you get not work, if you possess not the means of supporting your family, we will support you" but whence are the funds to arise—if the movement be universal with the miners, it will be equally so with the masters. "A" (quoth the delegates) never fear this; if the masters will agree to employ you, you can make them suffer, because they must contribute to your support in the "Union." We feel that every one would cast from him such counsel. The miner knows the due of independence, in earning the means for the support of his family by the sweat of his brow; will he, then—can he be expected to subject himself to Poor-law relief, where, separated from his wife, and that wife from her children, he will have cause to curse all hours when the general union of the "Miners' Association" first came under his observation. If any set of men be more independent—they be more laborious, or undergo more fatigue or risk—than another, it is the miners and colliers of Great Britain; and we trust the day is yet far distant when we shall find them enrolled in an association which has for its object the upsetting of all kindly feeling which exists between master and man, and which we predict is being established for the benefit of purposes.

Let us, however, proceed. The second object is, we are told, "to diminish and equalize the hours of labour, for (the address continues) we are perfectly satisfied that if the miners of England, Scotland and Wales (Ireland, we presume requires no additional agitation) were united to a man, and those in employment still continued to perform the long day's work that a poor performed, an advance of wages could not be maintained, for every market is regulated by a law, over which we have no control—that is, demand and supply; and so long as there is a surplus of labourers in the market, it will be impossible to get an advance of wages." It is difficult to guess at the meaning of this paragraph; the 3rd of "Oregonia," to a certain extent, is clear—but does it not partake somewhat of the "Malthusian" creed? However, we will continue—"Now, you have nothing to do (say the delegates) but to make yourselves scarce in the market; then you will make yourselves valuable, and not till then." It is perfectly true that the value of the diamond is attributable to its scarcity—the emerald, the topaz, and other gems—but their value is not to be ascribed to their being rendered "scarce," but that they are rare in themselves. If the argument holds good which is put forward by the delegates, why should miners hold themselves scarce, and why impose the same rule of wages as that obtained in Australia, New Zealand, Van Diemen's Land, or any of our colonies, but to except the United States, where the Irish emigrant receives a good wage, even his time, the rate of labour he can obtain in his own country? Will the delegates then be the first to tell him to go, as he is in a day? "No they would say, potatoes are cheap, but plentiful, and rents low." Where, then, we would ask, is the line to be drawn—how a conclusion to be arrived at?

The whole thing is founded in error, if not in dishonesty;—we are utterly sure that the miner will never lend himself to the formation of an association which shall have for its object his real production—the support of his family, in case of accident; and this can only be achieved by a "general union"—that union which we look forward to, with anxiety—the union of men and master, not the disunion which is attempted to be created by the present fallacious and dangerous statement.

We have allowed ourselves to write a further length than the press of matter with which our columns must be well justified by us, but the subject is one so important—the principles advanced by the union as dangerous—that we should not fail our duty to the working miner did we not point out the dangers to which he is exposed, and the "pit" in which he is likely to fall. Let him, then, take our words as the "advice" which shall protect him from the "grease" which is the object of the delegates to create. Let him look to his employer as the "pillar" which supports the "roof,"

which affords shelter to his wife and children; and, while he labours with his body, let his mind be unimpaired, and grateful to his Creator for the means afforded him of subsistence, however poor they may be. We repeat, in conclusion, that we are all indebted to each other for the means afforded us of passing through life. Some may boast of fortunes acquired by the hard earnings of their forefathers—and we might adduce many illustrious examples of our own times, of advancement being acquired by the strict and vigilant performance of our duties, no matter in what station of life we are placed. We have each our duty to perform; let us endeavour to do so, and not be misled by the selfish views of agitators, or the demoralising characteristics displayed by such men, who, as delegates, profess their regard for those on whom, like the vampire, they seek to live.

The concluding part of the "Appendix to the Month of Grace" shall receive further notice in our next.

We last week offered some remarks on the law report of the case *TYLER v. WOOLLETT*, which appeared in our columns, with reference to the responsibility of directors; and, in again adverting to the subject, we feel that other arguments apply, and that the case of *THOMAS TANCRED* (also inserted, but on which space did not admit of notice) presents somewhat different features. We shall briefly remark upon them; and, as the question is one of importance, we purpose getting counsel's opinion, which we shall readily afford to our readers—for the point is one which requires the decision of the judges, and cannot, we think, be considered as determined by the verdict given.

We can imagine a jury being unanimous in their decision, that a tradesman should not be molested by the misconduct or want of caution of parties who put themselves forward as directors of companies—and, as we have no doubt, in the present instance, such was the case with the defendant, who allowed himself to be nominated—and, further, acted—as a director of the "London Joint-Stock Trades' Company;" but there is such a thing known in this country as law and justice—which do not always go together. The simple facts of the case may thus be stated:—The defendant having acted as a director, his name appearing on the prospectus, withdrew from the company in January, 1859, when he addressed a letter to such effect; but the dissolution of the company not having taken place until the month of August following, it was contended, on the part of the plaintiff, that he was responsible for all debts or liabilities contracted, no matter at what period—while it appeared, from the defence, that the debt on which the action was brought was made at a time when the defendant was no longer a director or partner.

We do not propose entering on the subject this week at length, but if this decision be law, we can imagine the value which will be attached to old prospectuses. We are, however, well pleased that such a verdict has been given—for, if we mistake not, it will make "folks look about them," and that some measure will be adopted, which, while it protects the public, will, at the same time, be a security to those who take upon themselves the office of directors.

## INCREASE IN THE GOLD PRODUCE OF RUSSIA.

According to the last intelligence from Siberia, the enterprise of gold washing has extended itself from the eastern side of the Ural Mountains to the Altai, and layers of gold sand have been found to extend along the Chinese frontier over a space of 80,000 square miles, of which the 200th part in the Ural district alone furnishes an average of 300 pounds (the pound is 32½ lbs.) a year—equal to 15,000,000 of paper rubles. Prof. Hoffmann has observed, that the masses of granite, hitherto deemed barren, of which this chain of mountains is composed, contain gold. In order to keep up, in some measure, the price of this metal, Gen. Corcoran has deemed it advisable to raise the tax to 10 per cent., and sees that it will be necessary to claim the Crown's right to the fifth part of the produce, amounting last year to 1000 pounds in Mount Altai. Should the hopes at present entertained be realized, and no unforeseen events take place, this sudden increase in the quantity of gold will affect the value of the precious metals equal to the discovery of America, or the introduction of the amalgam of quicksilver.

## THE RAILWAY MEETINGS OF THE WEEK.

**LONDON AND CROYDON RAILWAY.**—Another special meeting of the proprietors of this company has taken place, the object being the consideration of the extension of the line to Epsom. The chairman, in the course of his address, adverted to the projected branch of the South-Western Railway Company, and the consequent opposition which they might thus contemplate in Parliament. It was true (he observed) that, while the cost by the London and Croydon line to reach Epsom would be 170,000*l.*, and that of the South-Western Railway would be no more than 50,000*l.*, yet that the net returns would on the former, by the present traffic, making the ordinary allowances for increase by way of railway, be equal to upwards of 10 per cent. on the capital invested.—The motion submitted, that application to Parliament should be made, was carried unanimously.—The meeting then proceeded to discuss the position of the company, with reference to the Greenwich Railway Company. From this we gather that the Croydon proposed to pay 3*l.*, 2*l.*, and 1*l.*, on every passenger brought to London bridge, engaging also that the charge to Croydon should not exceed 1*l.* 6*s.*—third-class 3*d.*. To this the Greenwich directors assented, but coupled it with certain conditions that rendered the terms nugatory. The Greenwich Company have, however, it appears, since offered to abandon the conditions they wished to impose, provided the Croydon would pay 2*l.*, 2*l.*, and 1*l.*—and thus the matter stands; the directors of the latter contending that they would be sacrificing the interests of their constituents, at a time when the Bricklayers' Arms branch was an open competition, did they comply.

**BRISTOL AND EXETER RAILWAY.**—A special general meeting of the shareholders in this company was held on Wednesday, the 23rd inst., when a proposition was submitted, on the part of the directors, that 600,000*l.* (being one-half the required capital for forming the Plymouth and Exeter line) should be subscribed by this company, the remainder being in the following proportions:—Great Western Company, 150,000*l.*; Bristol and Gloucester Company, 50,000*l.*; and the remaining 400,000*l.* being raised by public subscription—it having been found, that with the proposed advance of 200,000*l.* on the part of the Bristol and Exeter Company, the amount could not be carried out, from the want of support on the part of the Plymouth and Exeter and the public. The meeting was very fully attended, and an opposition to the proposal was manifested on the part of many proprietors, terminating in a large majority against the proposition of the directors, which was accordingly withdrawn. We do not offer an opinion on the proceedings, which, we repeat to say, were of an exciting nature. In cases like these, we think it would be more prudent if the views of the principal proprietors were well ascertained. The result will be a severe blow to the proposed Plymouth and Exeter line; and those who would, in the end, have benefited by the communication, have only themselves to thank, for their imprudence in not carrying out an available measure.

**TAF VAE RAILWAY.**—A meeting of the directors and shareholders of this company took place on the 12th inst., for the purpose of receiving the report of the committee on the proposed agreement between the Marquis of Bute and the company, from which it appeared that the committee appointed for the purpose of negotiating had been unable to bring their labours to a close, and suggested further time for the purpose of considering their report.—Mr. Cresswell submitted a motion to the effect, that the proposed agreement for leasing the docks of the Marquis of Bute be determined, and that a representative be appointed to meet certain parties connected with the Glamorgan Canal Company, with the view to an amalgamation of the Taf Vae Railway with that company; the object being, further, that the several parties having strong claims, should then negotiate with the Marquis of Bute for leasing the dock by the joint companies. Mr. Bute expressed his opinion, that if such proposition were carried out, it would secure a return of 5 per cent. on the investment.—In the end, it was determined that a committee of parties representing the canal and railway should be held, when, it was understood, a representative of the Marquis of Bute would be present; and, with this understanding, the meeting separated.



## WATER-POWER OF IRELAND.

At the meeting of the Civilian Society, on the 1st of November last, held at the Royal Cork Institution, Mr. H. Hennessy read a paper "On the Water-Power of Ireland," in which he showed that the total quantity of water which falls on the surface, and the mean elevation of such land above the level of the sea, are good data for estimating the mechanical powers of its streams and rivers, subject to some modifications in the calculations. Meteorological observations have been taken in six different parts of Ireland, from which it appears that the mean depth of water falling in one year was 33.46 inches; multiply this by the area of the country, and the product is the whole quantity annually falling on the surface, but, to allow for evaporation, and what falls in situations where it cannot be made available, and from other considerations affecting the supply, the author considers that one-fifth should be deducted, to give the amount actually available for machinery. The superficies of Ireland is 30,399,508 acres, which, multiplied by four-fifths of the fall of rain, gives a quantity of water applicable to motive-power of 1,382,139,286,562 cubic feet; the mean height of the land is then taken at 560 feet, in which height forty overshots of water-wheels of ten feet diameter could work 374 cubic feet—or about 235 millions of water per minute on one such wheel would generate 1-horse power, and as there are 325,960 minutes in a year, the case stands thus—1,382,139,286,562 ÷ 40 = 34,554,966 ÷ 37.5 = 4,615,320, above 4 millions of horse-power per annum. This immense extent of power can never, perhaps, be required, and the surplus water could be easily conducted away for chemical and manufacturing purposes, many of the streams being of the purest water, flowing over carboniferous limestone—the most general strata in Irish geology, and are known to be eminently fit for all purposes requiring a freedom from metallic or gaseous impregnation.

## THE SCREW PROPELLER—STEAM NAVIGATION.

At the last meeting of the Liverpool Polytechnic Society, the president (John Grantham, Esq., C.E.) in the course of his annual address, said, that, finding that he had but few observations to make on the state and prospects of the society—he should introduce to their notice a topic of public interest, suited to the character of their meetings—the subject he alluded to was the present state of steam navigation. After some introductory observations, as to the failure of the science as a profitable mercantile speculation, he called their attention to the screw propeller, as a substitute for paddle-wheels—an improvement which he had great hopes would do much to place steam navigation on a firmer foundation. Several short notices of the screw propeller had appeared in scientific publications (see *Mining Journal* of the 20th October, for a detailed description, with diagram), but they were very imperfect, and little could be gleaned from them. It had, however, been referred to more satisfactorily in a paper written by Mr. Elijah Gallaway, the patron of paddle-wheels, in an appendix to Tredgold's work on the steam-engine. But the author had not formed a decided opinion on the question, and did not establish its superiority. The French claimed to be the original inventors of the screw propeller, and few would dispute with them the honour on this point—though they also claimed the steam-engine, which was due to the English. The lecturer here referred to a French paper detailing the performances of the French war steamer *Napoleon*, which were certainly satisfactory, and next noticed a number of instances in which the screw had been employed, even from the year 1699. It was also tried by different parties in 1743 and 1763. In 1802 the *Douglas* transport, which had been becalmed, was worked into harbour at Malta at the rate of one and a half mile per hour, by eight men at a spell. She went seven leagues with a screw, and the parties seemed to have contemplated every kind of propeller since patented by others. In 1820 the screw was applied to a vessel in the Thames. In 1828 a patent was taken out for a screw by Mr. Charles Combermere. In 1832 M. Navarre also applied it. In the same year, Mr. Woodcroft of Manchester took out his patent. In 1836 Mr. Smith and, in 1838 Ericsson, also obtained one. Combermere's and Smith's were much alike. Mr. Grantham then explained the principle of the screw (or inclined plane), and its advantages over the paddle-wheel, assuming for argument's sake that, simply as a propeller, there was no preference to be given to either. He referred to cross sections of two vessels of the same dimensions, one with the paddles and the other with the screw; also to longitudinal sections of the same. By pointing to these, he clearly showed the several advantages of screw vessels. There were several kinds of screw propellers, but the principle was the same in all—an inclined plane turned round a spindle or cylinder. (This he showed by wrapping a piece of paper, in the form of a right-angled triangle, round a roller; and the hypothesis, or slanting edge of the paper, described the form of the screw, which might be made of any pitch). And if a screw were made to revolve in a solid, by giving it one revolution, it would move forward or backward a distance equal to the pitch. There might be several threads in the same screw, but although this constituted a difference in form, the principle remained unaltered. Mr. Smith's first experiments were made with a single thread, or helix wound round an axis, making an entire revolution, and presenting to the eye, when looking in the direction of the axis, the form of a complete disc. Ericsson's and others consisted of a short portion of the screw, with many threads or helices, in some cases appearing to the eye when placed in the direction of the axis, as a complete disc. (He here described the number of blades on the screw, and how they were formed). Woodcroft (who obtained his patent in 1832) adopted a slightly different system. Instead of the thread being continuous, and the blades the same at all points, he proposed an increasing pitch at the after end. His object would be understood by considering a fish's tail, more particularly that of the eel (in a drawing of which, as if it were in motion, he pointed). In the evolutions made by its body and tail, they each continued to increase; and, consequently, for the loss of effect contained in the tail by the motion given to the water by the body. In like manner, by giving this constantly increasing angle to the screw, the same result would follow. This he (Mr. Grantham) considered to be a very beneficial modification of the original screw propeller. The principle did not escape the attention of others; and it was to be regretted that it had not been tried earlier and made known. He had alluded to the plans of Messrs. Smith, Ericsson, and Woodcroft, to the first two as being best known, and because he believed the award of superiority, was by almost common consent given to it. Mr. Smith was the originator of a company that built the *Archimede*—a vessel that circumnavigated England, and performed other long voyages. The first screw public attention to the subject. Great credit was due to that spirited company, and to Mr. Smith for these experiments, which were conducted on a liberal scale; but this was not the first vessel that had been propelled by a screw. Ericsson had previously done much, and displayed great originality of thought. The form of his propeller, although not the subject of this point, had never yet been explained, and it required only the slightest pitch to make it the most efficient yet constructed. He (the lecturer) was influenced by this opinion, when recently called upon to construct the small vessel called the *Liverpool* ferry, which had been at work on the Mersey. He had taken care not to imitate over the list, that these valuable plans had been overlooked. Several experiments had been made by Messrs. Brown, Chubb, and Guppy, at Bristol, under the superintendence of the latter, upon various forms of screw in the *Archimede*. In these some curious facts were observed, and it was then suggested that it was possible to propel a vessel faster by the screw, than the screw itself would have gone, had it worked in a solid medium. He at first conceived that there was an error in the calculations, but subsequent observations induced him to believe it possible to obtain such a result, and that all vessels having the screw in the dead end or stern, have a tendency to go faster than the theoretical calculation would lead us to expect—though if this tendency were increased, it would be at a loss of power. He accounted for it by the manner in which water fell into the vacuum left as the vessel passed forward. A similar operation might be observed in watching the eddy formed by the pier of a bridge, in which case the body was stationary and the water moved, but their relative positions were the same in both. The conclusion, therefore, was, that through the relative effect between the screw and the vessel appeared to be demonstrative, not that being obtained at a great sacrifice of power, such a result might arise from eddies in the form of the vessel, and was, therefore, an good indication, and that the utmost efficiency would be obtained, when the speed of the screw was from one-fifth to one-fourth part greater than that of the vessel. The lecturer then noticed some of the most remarkable screw vessels that yet appeared, and the forms of the propellers employed, and concluded the difficulties that opposed the general introduction of the screw, and showed that some of the objections to it were groundless. He showed by diagrams of two vessels of equal size, that screw propellers, which would not seem to have any leverage prior to the engine-room, on the place of the lower deck, on the engine, &c., run to the fore, would be introduced in screw vessels at that point, not only greatly strengthening the vessel where the most weight is, but admitting of a close range of masts or masts fore and aft, with little or no interference—a most interesting discovery, and one, in the course of which the discovery itself and its merits implied in the questionings, on the supposed inferiority of the screw.

ADVANCE ON COLONIAL WATER.—We are informed, that W. P. Wood, Esq., of Bristol College, Somerset, Messrs. Smith and Wood of Truro College, and Messrs. Child and Child of Chelmsford College, Truro, have advanced their salaries to be, a day-dormer as usual.—*Chelmsford*.

## ORIGINAL CORRESPONDENCE.

## GEOLOGICAL PHENOMENON.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am led to presume that geology, practically illustrated, will not degrade the columns of your *Journal*, circulated, as it is, in the mining districts; those of your readers engaged in mining operations would, probably, enter into the subject, and afford information, both amusing and instructive—disregarding all literary notions which may be entertained as to primary or secondary formations, so as to avoid controversy, with its abusive and contemptuous language—having their subjects on natural causes and effects, evidently demonstrative of that Supreme Power "which spoke, and it was done"—which commanded, and it stood fast." If geology may be considered a science, it cannot be profitably pursued without study and practical observation; and as one practical idea goes further than fifty theoretical, to where should we turn, with a view of obtaining practical information? Possessing such a scanty knowledge of geology as I do, my object is to elicit information by the few remarks I shall make, upon what I consider to be a geological phenomenon—I mean the intervention of up or down throw "faults," or "dislocations," which occur in part of an iron mine with which I am connected, and shown by the annexed diagram. A, a shaft, sunk to a mine eighty-three fathoms deep; B, the main roadway to the face of the workings; C, face of workings; D, a cross-heading driven before the workings, towards the downthrow fault, in which heading the two working veins of mine, now extending round the whole of the workings, about two feet apart, suddenly throw out, without any alteration in the mine ground or adjoining strata—no rise or depression, the measures keeping their regular inclination, and one vein only, in no way similar to the other, takes its place in the centre, between the other two; this was unforeseen and unexpected; the two veins were seven inches in thickness, the single vein not more than three—reducing the value of that part of the mine more than one-half. The extent of the workings from fault to fault is 900 yards.

Abercromby, Dec. 15.

A SOUTH WALES CHALIER.

[We are obliged to our correspondent for directing attention to an interesting subject as that on which his letter treats, and hope that it may be considered as the first of a series, to be followed up by other valued correspondents, whose good intentions we appreciate, but whose duties preclude them from devoting time to correspondence; yet we trust that they will endeavour to find a few moments to devote to a subject, the discussion on which will tend to elicit, while it furnishes much valuable information.]

## MR. MALLAT ON WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—A paragraph appeared in your *Journal* of the 11th of November last (stated to be copied from the *Journal of the Franklin Institute*), which demands that I should beg to be permitted to trespass, in a few words, upon your columns in reply. Had the writer (who appears to be an American, and possessed of the usual share of conceit as to whatever is done at his side of the Atlantic) examined my paper on water-wheels at length, in place of an abstract, he would have seen, that no pretension is set up by me to be the originator of the "circular conduit" applied to overshot wheels—or even the first to determine the value of the application. The primary object of my researches was, to determine certain questions which (as far as I am informed) the Franklin Institute did not determine or meddle with; and the experiments made with respect to the use of the circular conduit, or "close breast," as the writer calls it, applied to the lower quadrant of overshot wheels, had special reference to the relations of my principal object, while the valuation of power was only a collateral conclusion. It is consoling, however, to find how very close my results on this point come to those given by the Franklin Institute, although I did use "insignificant models," and it is worthy of observation, that the Franklin Institute has added nothing important to our knowledge beyond what the experiments of our great American, on his "insignificant models," gave long ago. From well made and comparatively large models better results can generally be got, when the differences of condition are properly attended to and estimated, than from observations on the great scale.

I do not wish to be understood as depreciating the American experiments, which are really valuable, and made with great devotion of time and expense—but they neither discovered *everything* relating to water-wheels, nor set aside Smoot's and many others' results. My present object, however, is only to request, that, by your insertion of these lines in the *Mining Journal*, you will do me the justice thus to contradict the heading to your quotation, in which you parade, in large letters, "Mr. Mallat's Close Breast for an Overshot Wheel not New;" you are yourself the first person who has called the close breast "Mr. Mallat's," and Mr. Mallat himself never claimed it, either as new or for himself in any form—on the contrary, my paper alludes to it distinctly as an old invention.

As to whether my researches on water-wheels are valuable or not, I am content to rest upon the opinions of some of the most distinguished of my professional brethren, as expressed in my having been honoured with the premium of the Institution of Civil Engineers, for the communication describing them to that body. RICHARD MALLAT, New. Inst. C.E.

Dublin, Dec. 15.

[Our correspondent is wrong in attributing to us the designation of which he complains—the article, including the heading, is a literal transcript from the *Journal of the Franklin Institute* for September, 1843, and thus we are exempt from the charge. We believe all who know Mr. Mallat, either personally or otherwise, will admit that the high reputation he has gained is consequent upon his improvements. His valuable communications furnished to the British Association for the Advancement of Science, as well as in numerous works, and his practical experience, are sufficient to themselves to have rendered his personal communication unnecessary. We are well pleased, however, to find him again as one of our correspondents, and shall gladly avail ourselves of any contributions which his leisure may enable him to afford for insertion in our columns.]

## MR. A. ROUS' ALLEGED INVENTION FOR "DETERMINING THE VELOCITY OF THE PISTON OF A STEAM-ENGINE AT DIFFERENT PARTS OF THE STROKE" NOT NEW.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In the *Practical Mechanic and Engineer's Magazine*, published in Glasgow, the 16th of this month, I perceive, at page 104, that credit has been given by Mr. J. Taylor, at the late meeting of the British Association, held at Cork, to a Mr. A. Rous (formerly a working engineer in Cornwall), for the invention of a mode of determining the velocity of the piston of a steam-engine at different parts of the stroke. Now, Sir, as the description given assimulates in every way with a method adopted by me so far back as February, 1840, and a model of which was submitted to Josiah Farber, Esq., C.E., in June, 1842, I allow myself to think the priority of invention belongs to me. If Mr. A. Rous, however, has evidence of his having invented it previous to the date given by me, I shall be happy at once to concede the point. The model I refer to is submitted to Mr. Farber in still in that gentleman's possession.

London, Dec. 21.

JAMES A. EMMETT, C.E.

## MINERAL RESOURCES OF IRELAND.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having seen, in your interesting *Journal* of the 20th inst., some remarks on the *Dislocation* (with which I am well acquainted), I beg, through the medium of your *Journal*, to offer an observation or two on the dislocation district in which *Dislocation* is situated—which I consider and believe to be that I am acquainted with. The district to which I would draw attention is from Donaghadee Castle, west, to the Mizen Head, and from Donaghadee, north, to Donaghadee Bay, which includes a distance of twelve miles in length, and about six miles wide, which I have based, on personal inspection, to be a vast stretch of strong, compact, and not well bedded. I would beg also to state, that the dislocation can be strongly recommended for carrying on mining operations with the greatest advantage, and to almost any extent.

Ballyvaughan, Dec. 15.

A. PRACTICAL MINER.

[We insert the letter of our correspondent, being anxious to place all facts connected with the mining resources of Ireland prominently before the public. "A Practical Miner" would, however, make his communications more complete and useful, by entering into practical details of operations in the districts with which he may be connected, and which would, doubtless, be more towards attracting attention than the more general observations contained in the above.]

## MR. RYAN'S SYSTEM OF VENTILATION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In consequence of the letter signed "Mechanic," in your Number for the 20th instant, I have written to Mr. James Ryan, and trust the letter will find him, and duly elicit a satisfactory rejoinder; and I think I may safely say, Mr. Ryan's silence entirely proceeds from his neither having seen or heard of the observations which have been made on his plan. His system is sufficiently notorious, for it has already been carried into practical effect in some of the Staffordshire and other collieries, and has been fully described in a pamphlet circulating its details; he can, therefore, have no possible supposable motive for concealment. As far as my own opinion may extend, it is entirely in favour of Mr. Ryan's system of ventilation, for it seems to me to contain the principles of a sound and rational plan; at present, however, I would rather leave a descriptive account of the system in abeyance, in case Mr. Ryan should find leisure to speak for himself. I fear, however, it must be confessed, that, from motives of unworthy jealousy—or, it may be, from some other unexplained cause—his plan and proposals have met with obstacles and opposition, in the counties of Northumberland and Durham, too formidable for a solitary individual to surmount; and from some more so than the late Mr. John Buddle—"Do certain all nial rectum." Clashing and contending interests are terrible opponents—and, what is one, however bold the front, and strong in the panoply of truth, against the many, when set in hostile array? I will frankly confess to you, that I see, under present circumstances, no prospect of amelioration for the miner—certainly, no change will originate with the proprietors of coal-mines. My Lord Londonderry, in his memorable pamphlet, so severely censured by the *Times*, endeavoured, by a bold inversion of rationalization, to make it appear, that the *animal portion* was superior to the immortal mind of man, and should be the object of exclusive care! I fear, however, that his lordship would indignantly spurn the inference which flows from this startling doctrine—namely, that the horns of my Lord Londonderry is better than his side!—It is written on the other hand, "That the soul be without knowledge is not good." Now, Sir, let me seriously ask, what are we to expect from a source whence such sentiments emanate?—and, also, when I consider the aristocratic bearing of our legislative House of Assembly, and their obstinate adherence to what they, in their "collective wisdom," are pleased to denounce as "vested rights," I see no prospect of relief. The *corpus* must be expressed—and this mighty lever is the only power that can compel supercilious and haughty despots to do homage to the philanthropic maxim—"Humanity shall overcome sinism pite." What, Sir, has the Parliamentary inquiry instituted in 1835, done?—an *encho reiteration*, "What?" What have Lord Ashley's humane exertions achieved?—Not a tithe of the good contemplated. We want ventilation, and a scientific system of working coal-mines—not safety-lamps, as I may show hereafter.

It may suffice, now, merely to state, in reference to Mr. Ryan's system of ventilation, that the evidence of Messrs. Buddle, Smith, and Forrester entirely corroborate the existence of the phenomena which supplied his data. In that admirable digest, the *Report of the South Shields Committee appointed to Investigate the Causes of Accidents in Coal Mines* (Edin., 1843), we have an honest, honourable, and faithful tribute to the merits of Mr. Ryan's plan. The award of the gold medal and 100 guineas, by the Society of Arts, in 1816, to Mr. Ryan, was founded on the ample testimony, by practical men, of its triumphant success; and M. Bousne, the distinguished director of the Belgian mines, made the "advantages inimitable" of the system propounded by Mr. Ryan. What further evidence do we require of the excellence of his plan?—I may, in a future communication, trouble you with a commentary on his system, which I believe to be rooted in nature, and founded on recognised statistical laws.

December 18. J. MURRAY.  
[The subject of ventilation of mines is so important in itself, that all communications treating on one system or another, whether "for or against," are highly valuable, and will, doubtless, be equally appreciated by our readers as by ourselves. If a system be not perfect, then the attention drawn to the objectionable portions of it, will best aid the scientific or practical man in concluding some new plan to remedy the defect. We are well aware that Mr. Ryan has had much to contend with. Interest and prejudice have gone hand in hand; and while we are ready to admit the value and worth of the man, and with Mr. Murray repeat *de mortuis nil nisi bonum*, yet we believe it will be too generally admitted, that prejudice did exist, and that in no slight degree, in the quarter referred to. The *Report of the South Shields Committee* is now before us, and the testimony afforded is highly honourable to Mr. Ryan, as it is to the members of which committee was composed. The question may be considered as again coming under attention—with renewed and increased claims, the fearful accidents arising from want of ventilation, the proposed application to the Government and legislative body on subject of accidents in mines, all tend to raise the question as not only one of interest, but importance. Mr. Matthias Duce, to whom we were indebted for several valuable articles on the subject, will, we doubt not, avail himself of the opportunity which these presents itself, of again expressing his opinions, and lending that counsel and advice, for which his long experience is well fitted him.]

## COMBINATION AMONG OPERATIVE MINERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Permit me, through the medium of your valuable paper, to call the attention of the mining interest to the extensive combination now forming amongst the operatives employed in all mineral pursuits. One of their papers, which is circulated privately, I enclose, for the information of those who may not have seen it; and, I hope, it may be the means of calling the attention of the trade generally to the subject; and, I trust, that the same degree of unanimity will be found amongst masters as exist among their workmen; and that the proprietors and workers of mines will truly put down this union, by refusing generally to employ any man who does not sign a declaration that he belongs to no union. Firmness on the part of the employers in resisting any distinction from their men, together with an earnest endeavour to remedy any real grounds of complaint, will speedily check what otherwise will be one of the most extensive, injurious, and dictatorial unions which has ever been formed. Treating that this subject may be taken up by able hands than mine, I remain, &c., Newcastle, Dec. 21. ANTI-UNION.

[Some observations on this communication will be found in another column. The paper referred to can be inspected at our office.]

## BEALE'S ROTARY STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I think Mr. Beale should feel obliged to your correspondent, "Exponent," for drawing his attention, in the manner he has done, to his rotary engine, for, I confess, that the same idea had struck me that had occurred to him, and, I doubt not, to many other persons also. There is no arguing, they say, against facts, and for he is from me to question the truth of Mr. Beale's assertions; but I must observe, that it has always been held by mechanists, that, where attention exists, there cannot fail to be some waste of the rubbing surfaces. Now, that there are such rubbing parts is beyond all doubt. I may not have a quite clear conception of the structure of this machine, yet, I should say, the rollers, although they may revolve, from contact with the inner rim of the cylinder, must rub hard against the flange of their concave, and, certainly, their ends must be pressed by the sides of the last. The revolving cylinder, which, I presume, is fastened on the axle, must also rub on one of its sides, if not both—the construction of the case must determine which. Under all the circumstances, and the best consideration I am enabled to give the matter, even after what Mr. Beale has written, I am still unable to dissent my mind of the opinion which first occurred to it, that this engine must be liable to a considerable amount of friction, and to great breakage, in comparison with the last. I disclaim all intention of reviling, or of expressing a doubt of Mr. Beale's statements, but I should have been glad of a little more reasoning in conjunction with his facts. Yes, Mr. Editor, speak of the letter attached to this engine, and which is also patented, as promising great worth; your description of it is too accurate to allow of my clearly comprehending it. If Mr. Beale would be so obliging as to describe it, I am persuaded he would greatly satisfy your readers, as well as

AN OLD ENGINEER.  
[We doubt not but that Mr. Beale will afford the desired information. The subject is one of great interest, and we are well pleased to find it treated by the communications of correspondents, to which we shall, at all times, readily give insertion.]

## ROTARY STEAM-ENGINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I feel sure if my remarks in my previous communication should have been represented to Mr. Beale, I had an aim of dissipating any illusion in the least—and receiving any objection against a plan of *rotary steam engine*, rather than the reverse, its reputation. As I distinctly remember, I am persuaded he would greatly satisfy your readers, as well as

AN OLD ENGINEER.  
[There are numerous descriptions of *rotary steam engines* in the *Mining Journal*, and we are well pleased to find it treated by the communications of correspondents, to which we shall, at all times, readily give insertion.]



[illegible]



### Mining Correspondence.

The late Mr. Joseph's Successors.—David Burr, Esq., of New York, it is said, has been appointed to the important and influential situation of principal manager of the Mortgage of Landholders' retirement works and being arrangements in the county of Devon, in place of the late J. Buddle. The execution of mining operations in the latter district, now held by the late Mr. Buddle, will, it is said, be conducted on a new system of management.



